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09/849,152	05/04/2001	Peter R. McCann	KLR: 1016.066	9708

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EXAMINER

ALLEN, DENISE S

ART UNIT PAPER NUMBER

2872

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/849,152

Applicant(s)

MCCANN ET AL.

Examiner

Denise S Allen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-54, 59-82, 85 and 86 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-54, 59-82, 85 and 86 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Information Disclosure Statement***

All of the documents cited on the Information Disclosure Statement filed on January 16, 2003 are duplicates of the documents cited by the Examiner in the Office Action on November 20, 2002. Therefore all of these documents have been lined through on the form PTO-1449.

### ***Drawings***

The drawings filed on April 23, 2003 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

### ***Response to Arguments***

In the Applicant's response on April 23, 2003 (paper #11), the Applicant argues with respect to claims 1 – 9 and 77, that Rumbaugh fails to teach or reasonably suggest that a major portion of the optical fiber is maintained free from freely moving with respect to the probe body (pages 5 – 6). This argument has been fully considered and found to be persuasive. The Examiner agrees that the size of the channel taught by Rumbaugh allows the most of the optical fiber to move freely.

The rejection of claims 1, 2, 4, 5, and 7 – 9 under 35 U.S.C. 102(b) as being anticipated by Rumbaugh in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

The rejection of claims 3 and 6 under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Yarush et al in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

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The rejection of claim 77 under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Wach et al in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

The Applicant further argues with respect to claims 10 – 18 and 78, that Rumbaugh fails to teach or reasonable suggest that the cross sectional area immediately surrounding the optical fiber at the tip of the probe is smaller than at the opposing end of the probe and that the cross sectional area immediately surrounding the optical fiber at an intermediate portion generally halfway between the tip and opposing end of the probe is smaller than at the opposing end of the probe as in the amended claim 10 (pages 6 – 7). This argument has been fully considered and not found to be persuasive.

The examiner respectfully disagrees with the Applicant's argument. Rumbaugh does teach that the cross sectional area immediately surrounding the optical fiber at the tip of the probe (Figure 5 cross-sectional area of reference 20 at reference 12) is smaller than at the opposing end of the probe (cross-sectional area of reference 20 at reference 16b) and that the cross sectional area immediately surrounding the optical fiber at an intermediate portion generally halfway between the tip and opposing end of the probe (cross-sectional area of reference 20 at reference 22) is smaller than at the opposing end of the probe (cross-sectional area of reference 20 at reference 16b).

The Applicant further argues with respect to claims 19 – 27 and 79, that Rumbaugh in view of Yarush et al fail to teach or reasonable suggest that the optical fiber is movable with respect to the inner layer when engaging the optical fiber with the probe body as in the amended claim 19 (page 7). This argument has been fully considered and found to be persuasive. The

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Examiner agrees that the optical fiber and the material closely surrounding it that are taught by Yarush et al are not movable with respect to one another.

The rejection of claims 19 – 27 under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Yarush et al in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

The rejection of claim 79 under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Yarush et al and further in view of Wach in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

The Applicant further argues with respect to claims 28 – 36 and 80, that the length of the optical fiber extending beyond the tip is extendable without removing the optical fiber from the probe body as in the amended claim 28 (pages 7 – 8). This argument has been fully considered and not found to be persuasive.

The examiner respectfully disagrees with the Applicant's argument. Rumbaugh teaches that the fiber is permitted to move longitudinally and retracts with respect to the probe body without removing the optical fiber from the probe body (column 3 lines 7 – 27). Since the fiber retracts when a contact force is applied, it is reasonable to expect the fiber to extend when the contact force is removed; therefore Rumbaugh reasonably suggest the length of the optical fiber extending beyond the tip is extendable without removing the optical fiber from the probe body.

The Applicant further argues with respect to claims 37 – 45 and 81, that Rumbaugh fails to teach or reasonable suggest a support supporting a major portion of the circumference of the optical fiber for selectively maintaining the optical fiber from freely moving longitudinally with respect to the probe body as in the amended claim 37 (page 8). This argument has been fully

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considered and found to be persuasive. The Examiner agrees that the support taught by Rumbaugh contacts only a portion of the circumference of the optical fiber.

The rejection of claims 37 – 39, 41, and 43 – 45 under 35 U.S.C. 102(b) as being anticipated by Rumbaugh in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

The rejection of claims 40 and 42 under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Yarush et al in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

The rejection of claim 81 under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Wach et al in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

The Applicant further argues with respect to claims 46 – 54 and 82, that Yarush et al fails to teach or reasonable suggest a substantial portion of the probe body being readily bendable to adjust the angle of the probe tip with respect to the probe body and the optical fiber slidably engageable with the substantial portion of the probe body as in the amended claim 46 (pages 8 – 9). This argument has been fully considered and found to be persuasive. The Examiner agrees that the portion of the probe body of Yarush et al that is readily bendable is coated onto the fiber and therefore not slidably engageable with the fiber.

The rejection of claims 46 – 54 under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Yarush et al in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

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The rejection of claim 82 under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Yarush et al and further in view of Wach et al in the Office Action on November 20, 2002 (paper #7) has been withdrawn.

The Applicant further argues with respect to claims 59 – 67 and 85, that Rumbaugh fails to teach or reasonable suggest a major portion of the probe having a substantially constant vertical profile as in claim 59 (page 9). This argument has been fully considered and not found to be persuasive.

The examiner respectfully disagrees with the Applicant's argument. The portion of the probe of Rumbaugh from reference 36 to reference 10 in Figure 1 is a major portion of the probe and has a substantially or essentially constant vertical profile, since the vertical height changes by only a small amount in this portion. In contrast, the portion of the probe at reference 32 clearly does not have a constant vertical profile since the vertical height changes by a large amount, but this portion is not a major portion of the probe. Since the Applicant's disclosure does not provide a quantitative definition of "substantially constant" (i.e. percent change), the definition essentially, in essence, or largely has been used for substantially.

The Applicant further argues with respect to claims 68 – 76 and 86, that Rumbaugh fails to teach or reasonably suggest a major portion of the cavity of the probe closely surrounds the optical fiber as in claim 68 (pages 9 – 10). This argument has been fully considered and not found to be persuasive.

The examiner respectfully disagrees with the Applicant's argument. The portion of the probe of Rumbaugh from reference 12 to reference 22 in Figure 5 is a major portion of the probe and the cavity (reference 20) closely (near in space) surrounds the fiber (reference 16), since the

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space around the fiber is small in this portion. In contrast, the portion of the probe from reference 16 to reference 10 clearly does not surround the fiber as closely since the space around the fiber is larger in this portion of the probe. Since the Applicant's disclosure does not provide a quantitative definition of "closely surrounds" (i.e. percent larger than fiber), the definition near in space has been used for closely.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 3, 5 – 9, 19 – 21, 23 – 27, 37 – 40, 42 – 49, and 51 – 54 are rejected under 35 U.S.C. 102(e) as being anticipated by Clyne (US 6,071,009).

Regarding claims 1, 7, 19, 20, 25, 37, 38, 43, 46, 47, and 52, Clyne teaches a fiber optic probe (Figure 3 reference 44) comprising: a probe body having a tip (reference 72) for selectively approaching a device under test; an elongate optical fiber (reference 22) extending longitudinally along said body and extending beyond said tip (reference 42); and said probe body being sized such that substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body (references 22 and 42 cannot move laterally within references 58, 60, 62, and 64).

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Regarding claims 2, 21, 39, and 48, Clyne teaches said probe body defining a first terminal portion (reference 64) proximate said tip having a first cross sectional area, a second terminal portion (reference 56) proximate the opposing end of said probe body from said tip having a second cross section area and an intermediate portion (reference 60) located generally half way between said first terminal portion and said second terminal portion having a third cross section area, wherein said first cross sectional area is less than said second cross sectional area, and said third cross sectional area is less than said second cross sectional area.

Regarding claims 3, 40 and 49, Clyne teaches said probe body proximate said tip including an inner material (reference 60) closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer (reference 56) surrounding said inner material, wherein said inner layer of material inherently has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90 degrees than said another layer while being flexed (column 4 line 50 – column 5 line 40), when said another layer is free from said inner layer of material.

Regarding claims 5, 23, 37, and 51, Clyne teaches a support (reference 64) supporting a major portion of the circumference of said optical fiber for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

Regarding claims 6, 24, 42, and 46, Clyne teaches a substantial portion of said probe body being readily bendable (reference 50) to adjust the angle of said probe tip with respect to the probe body and said optical fiber slidably engageable with said substantial portion of said probe body (reference 60).

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Regarding claims 8, 26, 44, and 53, Clyne teaches a major portion (reference 56) of said probe body having a substantially constant vertical profile.

Regarding claims 9, 27, 45, and 54, Clyne teaches said probe body defining a cavity (Figure 3 cut away sections show cavity) therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

Regarding claim 19, Clyne teaches said probe body proximate said tip including an inner material (reference 60) closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer (reference 56) surrounding said inner material, wherein said inner layer of material inherently has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90 degrees than said another layer while being flexed (column 4 line 50 – column 5 line 40), when said another layer is free from said inner layer of material, wherein said optical fiber is movable with respect to said inner layer when engaging said optical fiber with said probe body (reference 64, column 4 lines 43 – 44).

Claims 10, 13, 14, 16 – 18, 28, 30, 32, 34 – 36, 59, 61, 63, 64, 66 – 68, 70, 72, 73, 75, and 76 are rejected under 35 U.S.C. 102(b) as being anticipated by Rumbaugh.

Regarding claims 10, 28, 30, 59, 61, 68, and 70, Rumbaugh teaches a fiber optic probe (Figure 1 reference 10) comprising: a probe body having a tip (reference 12) for selectively approaching a device under test; an elongate optical fiber (reference 16) extending longitudinally along said body and extending beyond said tip (reference 16a); and said probe body defining a first terminal portion proximate said tip having a first cross sectional area immediately surrounding said optical fiber (Figure 5 cross-sectional area of reference 20 at reference 12), a second terminal portion proximate the opposing end of said probe body from said tip having a

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second cross section area immediately surrounding said optical fiber (cross-sectional area of reference 20 at reference 16b), and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross section area immediately surrounding said optical fiber (cross-sectional area of reference 20 at reference 22), wherein said first cross sectional area is less than said second cross sectional area, and said third cross sectional area is less than said second cross sectional area.

Regarding claims 13, 28, 63, and 72, Rumbaugh teaches said elongate optical fiber longitudinally adjustable with respect to said body (column 3 lines 7 – 27) such that the length of said optical fiber extending beyond said tip is extendable without removing said optical fiber from said probe body (see Response to Arguments above).

Regarding claims 14, 32, 64, and 73, Rumbaugh teaches a support (Figure 1 reference 22) for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

Regarding claims 16, 34, 66, and 75, Rumbaugh teaches said probe body being sized such that substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body (Figure 5).

Regarding claims 17, 35, 59, and 76, Rumbaugh teaches a major portion of said probe body having a substantially constant vertical profile (Figure 1).

Regarding claims 18, 36, 67, and 68, Rumbaugh teaches said probe body defining a cavity (Figure 1 reference 20) therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 22, 41, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clyne in view of Rumbaugh.

Clyne teaches a fiber optic probe as described above. Clyne does not teach said elongate optical fiber longitudinally adjustable with respect to said body.

Rumbaugh teaches said elongate optical fiber longitudinally adjustable with respect to said body (column 3 lines 7 – 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the adjustability of Rumbaugh in the fiber optic probe of Clyne in order to prevent surface damage when the fiber is forcibly abutted against a surface (Rumbaugh column 3 lines 13 – 27).

Claims 11, 29, 60, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Clyne.

Rumbaugh teaches a fiber optic probe as described above. Rumbaugh does not teach said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

Clyne teaches a probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body (Figure 3 references 22 and 42 cannot move laterally within references 58, 60, 62, and 64). It would have

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been obvious to one of ordinary skill in the art at the time of the invention to use the smaller cavity size of Clyne in the fiber optic probe of Rumbaugh in order to reduce attenuation in the optical fiber caused by bends in the optical fiber.

Claims 12, 15, 31, 33, 62, 65, 71, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Yarush et al.

Rumbaugh teaches a fiber optic probe as described above. Rumbaugh does not teach said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90 degrees than said another layer while being flexed, when said another layer is free from said inner layer of material. Rumbaugh further does not teach a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

Regarding claims 12, 31, 62, and 71, Yarush et al teaches said probe body (Figure 12h reference 322) proximate said tip (reference 330) including an inner material closely surrounding said elongate optical fiber (reference 326 is a fiber optic cable which is inherently an optical fiber with a material closely surrounding it), said probe body proximate said tip including another layer (reference 332) surrounding said inner material, wherein said inner layer of material inherently has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90 degrees than said another layer while being flexed (column 19 lines 9 – 13), when said another layer is free from said inner layer of material. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the inner and another materials

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of Yarush et al in the probe body of Rumbaugh in order to protect the fiber while bending the probe.

Regarding claims 15, 33, 65, and 74, Yarush et al teaches a substantial portion of said probe body being readily bendable (Figure 12h reference 332) to adjust the angle of said probe tip with respect to the probe body (dotted lines in Figure 12h). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the flexibility of Yarush et al in the probe body of Rumbaugh in order to change the position of the tip of the probe body with respect to an item being measured.

Claims 77, 79, 81, and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clyne in view of Wach et al.

Clyne teaches a fiber optic probe as described above. Clyne does not teach a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

Wach et al teaches a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body (column 29 lines 11 – 13). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the structure of Wach et al in the fiber probe body of Clyne in order to rotate the fiber within the probe body.

Claims 78, 80, 85, and 86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh in view of Wach et al.

Rumbaugh teaches a fiber optic probe as described above. Rumbaugh does not teach a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

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Wach et al teaches a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body (column 29 lines 11 – 13). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the structure of Wach et al in the fiber probe body of Rumbaugh in order to rotate the fiber within the probe body.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise S Allen whose telephone number is (703) 305-7407. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

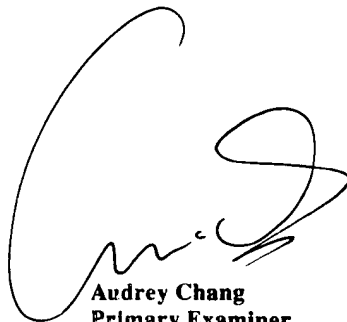
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Denise S Allen  
Examiner  
Art Unit 2872



dsa

June 13, 2003



Audrey Chang  
Primary Examiner  
Technology Center 2800